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EXAMINER

QUASH, ANTHONY G

ART UNIT

PAPER NUMBER

2881

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/743,560

Applicant(s)

OBARA ET AL.

Examiner

Anthony Quash

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Claim Objections

Claim 4, is objected to for minor misspelling. The word "firs" in line 8 should be deleted and the replaced by the word "first". Appropriate correction is required.

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 1-5,7-10,12-14 are rejected under 35 U.S.C. 102(e) as being anticipated by Lin [582]. As per claim 1, Lin [582] discloses a sample observation method intended for observing samples characterized by: capturing a view of a desired area of a sample by image pickup means and displaying the thus acquired image on a first screen, prompting the operator to select an area on the image, the area to be magnified and observed within the image displayed on the screen; capturing a view of the selected area of the sample to be magnified and observed, by the image pickup means, and acquiring a magnified image of the view, and displaying the magnified image on a second screen. See Lin [582] abstract, figs. 1-5, 11, 18-21, 26-27, 39-41c, col. 1 lines 40-50, 65-67, col. 2 lines 1-56, col. 5 lines 25-67, col. 6 lines 1-64, col. 7 lines 1-40, col. 8 lines 40-50, col. 9 lines 40-55, col. 10 lines 35-50, col. 12 lines 40-45, col. 13 lines 40-45, col. 14 lines 29-55, col. 15 lines 13-35, col. 20 lines 10-16, col. 21 lines 45-52, and col. 22 lines 20-25, 45-52.

As per claim 2, Lin [582] discloses adjusting the position of a sample so that a desired area of the sample will fall within the field of view of the image pickup means, capturing a view of the desired area of the sample zoom-in by first scale factor, thus acquiring a first image, displaying the first image on a first screen, superimposing an area to be magnified and observed within the first image displayed on the first screen on the screen, capturing a view of the area to be magnified and observed, by the image pickup means, at second scale factor that is larger than the first scale factor, thus acquiring a second image, and displaying the second image on a second screen. See Lin [582] abstract, figs. 1-5, 11, 18-21, 26-27, 39-41c, col. 1 lines 40-50, 65-67, col. 2

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lines 1-56, col. 5 lines 25-67, col. 6 lines 1-64, col. 7 lines 1-40, col. 8 lines 40-50, col. 9 lines 40-55, col. 10 lines 35-50, col. 12 lines 40-45, col. 13 lines 40-45, col. 14 lines 29-55, col. 15 lines 13-35, col. 20 lines 10-16, col. 21 lines 45-52, and col. 22 lines 20-25, 45-52.

As per claim 3, Lin [582] discloses the image pickup means being a scanning electron microscope. See Lin [582] col. 5 lines 50-60.

As per claim 4, Lin [582] discloses using a scanning electron microscope, characterized by adjusting the position of a sample so that a desired area of the sample will fall within the field of view of the scanning electron microscope, capturing a view of the desired area of the sample by the scanning electron microscope at first scale factor, thus acquiring a first image, displaying the first image on a first screen, comparing the first image displayed on the first screen with a reference sample image, determining an area to be magnified and observed in the first image displayed on the first screen, based on the above comparison, and displaying on a second screen a magnified image of the area thus determined to be magnified and observed. See Lin [582] abstract, figs. 1-5, 11, 18-21, 26-27, 39-41c, col. 1 lines 40-50, 65-67, col. 2 lines 1-56, col. 5 lines 25-67, col. 6 lines 1-64, col. 7 lines 1-40, col. 8 lines 40-50, col. 9 lines 40-55, col. 10 lines 35-50, col. 12 lines 40-45, col. 13 lines 40-45, col. 14 lines 29-55, col. 15 lines 13-35, col. 20 lines 10-16, col. 21 lines 45-52, and col. 22 lines 20-25, 45-52.

As per claim 5, Lin [582] discloses that the desired area of the sample is an area including a defect on the sample that has been detected by inspection with a surface defect inspection apparatus. See Lin [582] abstract, figs. 1-5, 11, 18-21, 26-27, 39-41c,

col. 1 lines 40-50, 65-67, col. 2 lines 1-56, col. 5 lines 25-67, col. 6 lines 1-64, col. 7 lines 1-40, col. 8 lines 40-50, col. 9 lines 40-55, col. 10 lines 35-50, col. 12 lines 40-45, col. 13 lines 40-45, col. 14 lines 29-55, col. 15 lines 13-35, col. 20 lines 10-16, col. 21 lines 45-52, and col. 22 lines 20-25, 45-52.

As per claim 7, Lin [582] discloses the first screen and the second screen appearing on a same display screen. See Lin [582] abstract, figs. 1-5, 11, 18-21, 26-27, 39-41c, col. 1 lines 40-50, 65-67, col. 2 lines 1-56, col. 5 lines 25-67, col. 6 lines 1-64, col. 7 lines 1-40, col. 8 lines 40-50, col. 9 lines 40-55, col. 10 lines 35-50, col. 12 lines 40-45, col. 13 lines 40-45, col. 14 lines 29-55, col. 15 lines 13-35, col. 20 lines 10-16, col. 21 lines 45-52, and col. 22 lines 20-25, 45-52.

As per claim 8, Lin [582] discloses acquiring a reference sample image not including any defect on a sample by capturing an image of the sample based on the information on a defect developed on the sample and detected by an inspection apparatus, acquiring a defective sample image including the defect on the sample by capturing an image of the sample, based on the information on the defect developed on the sample and detected by the inspection apparatus, locating the defect on the defective sample image by comparing the reference sample image and the defective sample image, capturing a magnified view of the local area where the located defect exists within the area whose view has been captured as the defective sample image, thus acquiring a magnified image of the defect, and displaying the magnified image of the defect on a screen. See Lin [582] abstract, figs. 1-5, 11, 18-21, 26-27, 39-41c, col. 1 lines 40-50, 65-67, col. 2 lines 1-56, col. 5 lines 25-67, col. 6 lines 1-64, col. 7 lines 1-

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40, col. 8 lines 40-50, col. 9 lines 40-55, col. 10 lines 35-50, col. 12 lines 40-45, col. 13 lines 40-45, col. 14 lines 29-55, col. 15 lines 13-35, col. 20 lines 10-16, col. 21 lines 45-52, and col. 22 lines 20-25, 45-52.

As per claim 9, Lin [582] discloses acquiring a reference sample image not including any defect on a sample by capturing an image of the sample based on the information on a defect developed on the sample and detected by an inspection apparatus, adjusting the position of the sample so that the defect will fall within the field of view of image capture, based on the information on the defect developed on the sample and detected by the inspection apparatus, acquiring a defective sample image including the defect on the sample by capturing an image of the sample in the adjusted position, locating the defect on the defective sample image by comparing the reference sample image and the defective sample image, capturing a magnified view of the local area where the located defect exists within the field view of image capture, thus acquiring a magnified image of the defect, and displaying the magnified image of the defect on a screen. See Lin [582] abstract, figs. 1-5, 11, 18-21, 26-27, 39-41c, col. 1 lines 40-50, 65-67, col. 2 lines 1-56, col. 5 lines 25-67, col. 6 lines 1-64, col. 7 lines 1-40, col. 8 lines 40-50, col. 9 lines 40-55, col. 10 lines 35-50, col. 12 lines 40-45, col. 13 lines 40-45, col. 14 lines 29-55, col. 15 lines 13-35, col. 20 lines 10-16, col. 21 lines 45-52, and col. 22 lines 20-25, 45-52.

As per claim 10, Lin [582] discloses acquiring a reference sample image not including any defect on a sample by capturing an image of the sample based on the information on a defect developed on the sample and detected by an inspection

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apparatus, acquiring a defective sample image including the defect on the sample by capturing an image of the sample, based on the information on the defect developed on the sample and detected by the inspection apparatus, locating the defective sample image by comparing the reference sample image and the defective sample image, capturing a magnified view of the local area where the located defect exists within the area whose view has been captured as the defective sample image, thus acquiring a magnified image of the defect, erasing the background from the magnified image of the defect, and displaying on a screen the magnified image of the defect from where the background has been erased. See Lin [582] abstract, figs. 1-5, 11, 18-21, 26-27, 39-41c, col. 1 lines 40-50, 65-67, col. 2 lines 1-56, col. 5 lines 25-67, col. 6 lines 1-64, col. 7 lines 1-40, col. 8 lines 40-50, col. 9 lines 40-55, col. 10 lines 35-50, col. 12 lines 40-45, col. 13 lines 40-45, col. 14 lines 29-55, col. 15 lines 13-35, col. 20 lines 10-16, col. 21 lines 45-52, and col. 22 lines 20-25, 45-52.

As per claim 12, Lin [582] discloses image pickup means to capture a view of a sample, storage means to receive and store data about a desired area of the sample, the view of the area to be captured by the image pickup means, from the external, position control means to control the position of the sample toward the image pickup means, based on the data about the desired area of the sample stored into the storage means, display means to display images of the sample acquired by being captured by the image pickup means, and arithmetic control means to locate a defect on the sample by comparing a plurality of images of the sample zoomed-in by first scale factor and captured by the image pickup means after the sample is positioned by the position

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control means and make the display means display an image of the defect zoomed-in by second scale factor that is larger than the first scale factor, together with an image including the defect captured at the first scale factor. See Lin [582] abstract, figs. 1-5, 11, 18-21, 26-27, 39-41c, col. 1 lines 40-50, 65-67, col. 2 lines 1-56, col. 5 lines 25-67, col. 6 lines 1-64, col. 7 lines 1-40, col. 8 lines 40-50, col. 9 lines 40-55, col. 10 lines 35-50, col. 12 lines 40-45, col. 13 lines 40-45, col. 14 lines 29-55, col. 15 lines 13-35, col. 20 lines 10-16, col. 21 lines 45-52, and col. 22 lines 20-25, 45-52.

As per claim 13, Lin [582] discloses storage means to receive and store the information on a defect developed on a sample acquired through inspection with an external defect inspection apparatus from the defect inspection apparatus, image pickup means to capture a view of the sample, thus acquiring an image of the sample, position control means to control the position of the sample, based on the information on the defect developed on the sample stored into the storage means, defect locating means to locate the defect by comparing an image of the sample not including the defect and an image of the sample including the defect, zoomed-in by first scale factor and captured by the image pickup means after the sample is positioned by the positioned control means, and display the image including the defect on a screen, and magnified defect display means to display a magnified image of the defect located by the defect locating means, the image captured by the image pickup means at second scale factor that is larger than the first scale factor. See Lin [582] abstract, figs. 1-5, 11, 18-21, 26-27, 39-41c, col. 1 lines 40-50, 65-67, col. 2 lines 1-56, col. 5 lines 25-67, col. 6 lines 1-64, col. 7 lines 1-40, col. 8 lines 40-50, col. 9 lines 40-55, col. 10 lines 35-50, col. 12

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lines 40-45, col. 13 lines 40-45, col. 14 lines 29-55, col. 15 lines 13-35, col. 20 lines 10-16, col. 21 lines 45-52, and col. 22 lines 20-25, 45-52.

As per claim 14, Lin [582] discloses image pickup means to capture a view of a sample, position control means to control the position of the sample so that a defect on the sample will fall within the field of view of the image pickup means, based on the information on the defect on the sample acquired through inspection with an external defect inspection apparatus, defect locating means to locate the defect by comparing an image of the sample not including the defect, zoomed-in by first scale factor and captured by the image pickup means after the sample is positioned by the position control means, and display on a screen the image of the sample including the defect thus located, and magnified defect display means to display a magnified image of a local area of the sample corresponding to the location of the defect on the image of the sample including the defect displayed on the screen of the defect locating means, the image captured by the image pickup means at second scale factor that is larger than the first scale factor. See Lin [582] abstract, figs. 1-5, 11, 18-21, 26-27, 39-41c, col. 1 lines 40-50, 65-67, col. 2 lines 1-56, col. 5 lines 25-67, col. 6 lines 1-64, col. 7 lines 1-40, col. 8 lines 40-50, col. 9 lines 40-55, col. 10 lines 35-50, col. 12 lines 40-45, col. 13 lines 40-45, col. 14 lines 29-55, col. 15 lines 13-35, col. 20 lines 10-16, col. 21 lines 45-52, and col. 22 lines 20-25, 45-52.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 6,11,15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lin [582]. As per claim 6, Lin [582] teaches all aspects of the claim except for specifically stating that first screen and second screen appear on different display screens. However, Lin [582] does teach that the method is to be used UNIX, DOS, Windows, or other operating systems and special purpose image generation, capture and server network modules installed in and or controlled by a computer. See Lin [582] abstract, figs. 1-5, 11, 18-21, 26-27, and 39-41c, col. 5 lines 35-45. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to have the first screen and second screen appear on different display screens in order to display the images to multiple computer users since it was well known to use UNIX and Windows to share information on multiple display screens.

As per claim 11, Lin [582] teaches all aspects of the claim except for specifically stating the reference sample image and the defective sample images are the images of the sample captured in secondary electrons reflected from the sample irradiated with charged particle beam. However, Lin [582] does teach the sample being irradiated by charged particles. See Lin [582] col. 5 lines 50-67. In addition, Lin [582] teaches that a camera or other image-capturing device captures the microscope's image. See Lin

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[582] col. 5 lines 50-67. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to have the reference sample image and the defective sample images be the images of the sample captured in secondary electrons reflected from the sample irradiated with charged particle beam since it is well known in the art to irradiate wafers with charged particle beams in order to obtain very detail images of minute areas.

As per claim 15, Lin [582] teaches all aspects of the claim except for specifically stating that the image pickup means be a scanning electron microscope. However, Lin [582] does teach the sample being irradiated by scanned electrons. See Lin [582] col. 5 lines 50-67. In addition, Lin [582] teaches that a camera or other image-capturing device captures the microscope's image. See Lin [582] col. 5 lines 50-67. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use a scanning electron microscope as the image pickup means since it was well known in the art to use scanning electron microscopes for imaging wafer.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent Nos. 5,717,204 and 5,578,821 to Meisburger et al. and 6,246,787 to Hennessey et al. are considered pertinent to the applicants' disclosure. Both Meisburger et al. patents are considered pertinent because of their discussion on an electron beam inspection system and method. Hennessey [787] is

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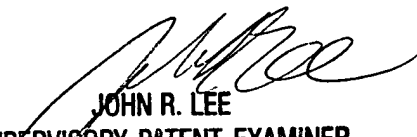
considered pertinent because of its discussion on a system and method for knowledgebase generation and management.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anthony Quash whose telephone number is (703)-308-6555. The examiner can normally be reached on M-F from 9 a.m. to 5 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John R. Lee, can be reached on (703)-308-4116. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)-308-0956.

A. Quash

A. Quash 1/12/03


JOHN R. LEE
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